

## **6.0 PREPARATION OF THE FORM R**

Site surveyors interviewed facility personnel during each site visit to obtain general information regarding completion of the Form R reports and to identify trends among the surveyed facilities. The information obtained during these interviews included quantitative information such as facility size (the number of employees at the facility), time to complete Form Rs, the types of personnel primarily responsible for preparing the Form R reports, and the types of references used by these personnel. In addition, qualitative feedback was obtained on the Form R Instructions, the Automated Form R (AFR), the TRI Hotline, use of the Form A beginning in RY 1995, and suggestions for additional guidance that EPA should develop to assist facilities in release and other waste management quantities estimation and Form R preparation.

### **6.1 Facility Personnel and References**

Table 6-1 identifies the percentage of facilities visited in a particular size range (based on number of employees) for each SIC Code group. As can be seen from the table, most of the inorganic chemical and paint manufacturing facilities had fewer than 50 employees, while the furniture, paper, organic chemicals, and plastics related industries had between 50-499 employees on average. In general, the size of the facilities visited for the RY 1994 and RY 1995 analysis were smaller than those visited in the RY 1987 and RY 1988 site visits.

Table 6-2 lists the types of personnel identified by the facility as being primarily responsible for preparing the Form R reports for each SIC Code group included in this analysis. As can be seen on the table, facility and corporate environmental staff most often completed the reports for each of the source categories visited. A brief description of each staff type identified in the table follows:

- Facility Environmental - In most cases, this is a full-time position for an on-site employee whose primary responsibility is dealing with environmental issues.

- Corporate Environmental - This person would have environmentally-related responsibilities for more than one individual facility and may or may not be physically located at the facility.
- Facility Staff - This is an employee whose responsibilities extend beyond the environmental arena. This staff type was primarily found to be preparing the Form R reports at facilities that had fewer than 50 employees.
- Consultant/Contractor - This includes personnel contracted outside the company to prepare the facility's Form R report.
- Safety Personnel - This staff type is similar to Facility Environmental. This person may have responsibilities including complying with Environmental Health and Safety issues as well.
- Other - This is anyone who filled out the Form R that does not belong to one of the previously described staff types.

**Table 6-1**

**Number of Employees at Visited Facilities**

Percentage of Facilities with a given Number of Employees <sup>a</sup>									
Employee Range	RY 1987	RY 1988		RY 1994				RY 1995	
	SIC Code 20-39	SIC Code 28, 291	SIC Code 34-38	SIC Code 25	SIC Code 281	SIC Code 285	SIC Code 30	SIC Code 26	SIC Code 286
10-49 employees	17	45	7	4	77	61	19	0	40
50-499 employees	62	48	42	82	23	39	81	70	60
>500 employees	21	7	51	14	0	0	0	30	0

<sup>a</sup>The 1987 and 1988 data are raw percentages of the facilities actually surveyed and are not scaled up to represent the entire SIC Code. The 1994 and 1995 data are scaled data which are weighted to represent the entire SIC Code.

**Table 6-2****Types of Personnel Completing the Form R**

Percentage of Facilities using a Particular Staff Type to Prepare their Form R <sup>a</sup>									
Staff Type	1987	1988		1994				1995	
	SIC Code 20-39	SIC Code 28, 291	SIC Code 34-38	SIC Code 25	SIC Code 281	SIC Code 285	SIC Code 30	SIC Code 26	SIC Code 286
Facility Environmental	47	29	38	31	53	24	43	80	60
Corporate Environmental	29	28	11	31	17	25	14	10	0
Facility Staff	11	37	21	25	38	67	36	10	50
Consultant/Contractor	10	1	15	12	12	18	13	0	0
Safety Personnel	2	5	15	8	14	1	9	0	0
Other	1	0.00	0.00	0.00	6	8	0.00	0	0

<sup>a</sup>Totals may equal more than 100 percent due to facility personnel identifying themselves as more than one staff type. The 1987 data are raw percentages of the facilities actually surveyed and are not scaled up to represent the entire SIC Code. The 1988, 1994, and 1995 data are scaled data which are weighted to represent the entire SIC Code.

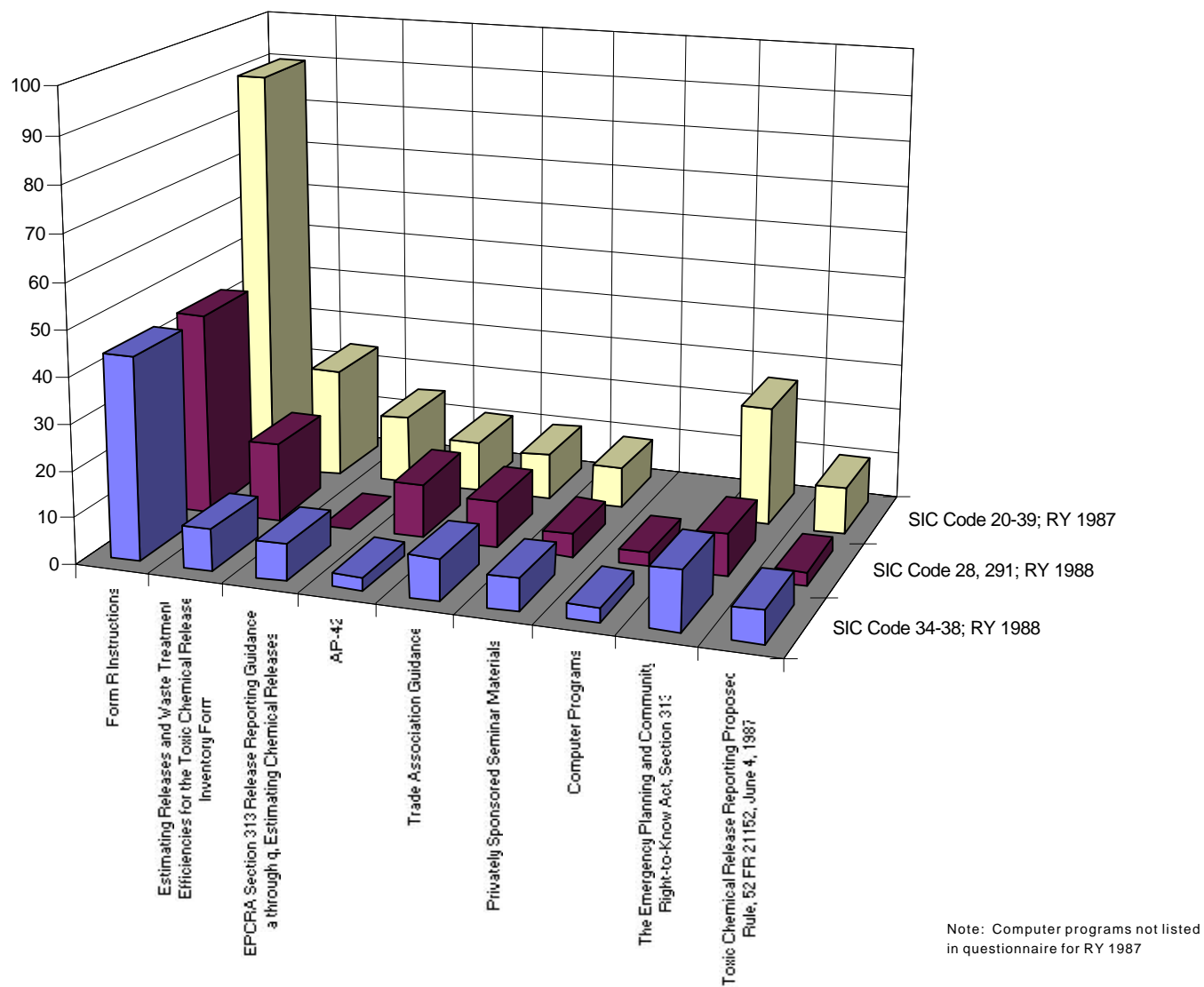
Table 6-3, Figure 6-1, and Figure 6-2 identify the references most commonly used by facilities to prepare their Form R reports. As can be seen on Table 6-3, more than 90 percent of the facilities visited used the TRI Reporting Form R instructions for RY 1994 and RY 1995 as compared to less than half who used the reference for preparing their RY 1988 Form R reports. In addition, a higher percentage of facilities are now using Trade Association Materials, Privately Sponsored Seminar Materials, computer programs, and EPA Sponsored Training Workshops than were used in the past. SIC Code 26, sampled for RY 1995, relies heavily on guidance from NCASI, a pulp and paper research organization, in completing Form Rs and documenting release calculations. EPA Sponsored Training Workshops have also contributed to increased use of EPA's compilation of air pollutant emission factors document, AP-42. The increased use in workshop or other training materials and computer programs is due to the greater availability of such resources than were available in the past.

**Table 6-3**  
**Common References Used to Compile the Form Rs**

Percentage of Facilities using a Particular Reference <sup>a</sup>									
Reference	1987	1988		1994				1995	
	SIC Code	SIC Code	SIC Code	SIC Code	SIC Code	SIC Code	SIC Code	SIC Code	SIC Code
	20-39	28, 291	34-38	25	281	285	30	26	286
TRI Reporting Form R Instructions	90	44	44	91	93	96	100	90	100
The Emergency Planning and Community Right-to Know Act, Section 313	26	9	13	N/A	N/A	N/A	N/A	N/A	N/A
Estimating Releases and Waste Treatment Efficiencies for TRI	24	17	9	22	8	22	11	20	10
EPCRA Section 313 Release Reporting Guidance, Estimating Chemical Releases	15	0	8	10	9	1	0	10	10
Compilation of Air Pollution Emission Factors, AP-42	11	12	3	15	17	33	5	20	60
Toxic Chemical Release Reporting Proposed Rule, 52 FR 21152, June 4, 1987	10	3	7	N/A	N/A	N/A	N/A	N/A	N/A
Industry Trade Association Materials	10	10	9	12	13	24	9	90	20
Privately Sponsored Seminar Materials	9	5	7	16	7	26	7	0	10
EPA Sponsored Training Workshop	N/A	N/A	N/A	13	32	27	38	20	10
Computer Programs	N/A	3	3	30	23	15	39	40	40

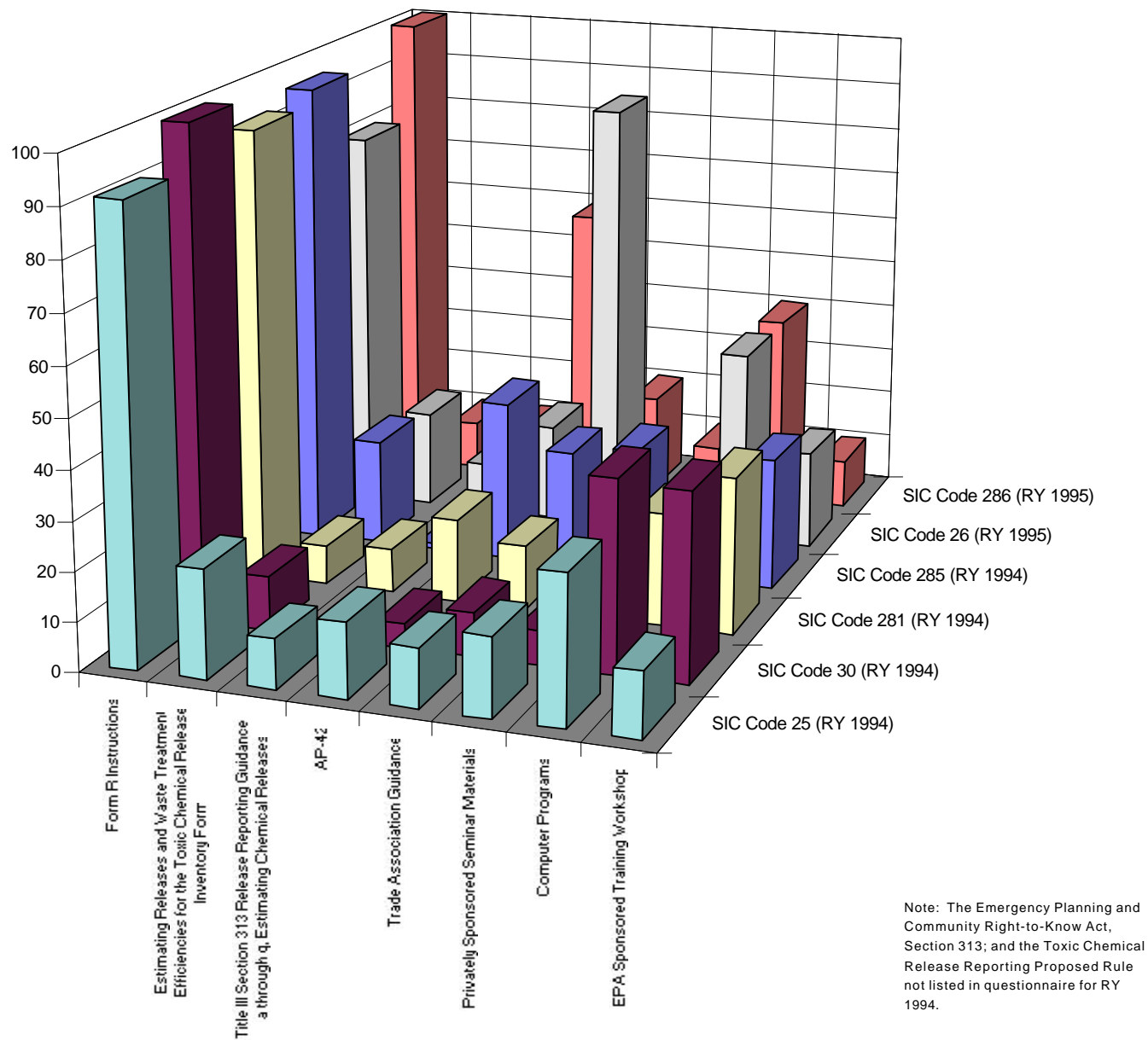
<sup>a</sup>Totals may equal more than 100% as facilities often used more than one reference. The 1987 data are raw percentages of the facilities actually surveyed and are not scaled up to represent the entire SIC Code. The 1988, 1994, and 1995 data are scaled data which are weighted to represent the entire SIC Code. N/A means the reference was not listed in the questionnaire in this reporting year and was not specifically listed by any of the facilities.

**Figure 6-1. Common References Used to Compile Form Rs for RY 1987 and RY 1988**



Data for this figure can be found on Table 6-3.

**Figure 6-2. Common References Used to Compile Form Rs for RY 1994 and RY 1995**



Data for this figure can be found on Table 6-3.

## **6.2            Amount Of Time Needed To Prepare Form R Reports**

Tables 6-4, 6-5, and 6-6, and Figures 6-3, 6-4, and 6-5 show the number of hours required to collect the necessary data and complete all the Form Rs for facilities surveyed in RY 1988, RY 1994, and RY 1995, respectively. Section 8 of the Form R was added after RY 1987 and RY 1988 Form Rs were completed. Thus, one would expect an increase in the amount of time needed to collect the necessary data and complete the Form Rs in the 1994 and 1995 reporting years. Even so, as was the case with the RY 1988, in RY 1994 the majority of facilities reported taking less than 24 hours to complete all of their Form Rs. There was even an observed decrease in the percentage of facilities reporting taking over 100 hours to complete their Form Rs in RY 1994. Facilities surveyed in RY 1995 tended to be larger and had more Form Rs than the facilities surveyed in previous years. Thus, the amount of time needed to fill out all Form Rs was greater in RY 1995, as shown in Table 6-6.

In order to take the number of Form Rs filled out by the facilities surveyed into consideration when calculating the average time required by facilities to fill out Form Rs, an analysis was done which divided the maximum number of hours in the range checked by the number of Form Rs filled out by the facility. The number of hours needed to fill out each Form R is presented by SIC Code and reporting year in Table 6-7.

**Table 6-4****Number of Hours Required to Complete all the Form Rs for RY 1988**

Time Estimate	Percentage of Facilities	
	SIC Codes 28 and 291 <sup>a</sup>	SIC Codes 34-38
≤8 hours	32	71
9-24 hours	6	5
25-40 hours	6	24
41-160 hours	25	
>160 hours	15	

<sup>a</sup> Totals do not equal 100% because not all facilities reported the time estimate. These data are scaled data which are weighted to represent the entire SIC Code.

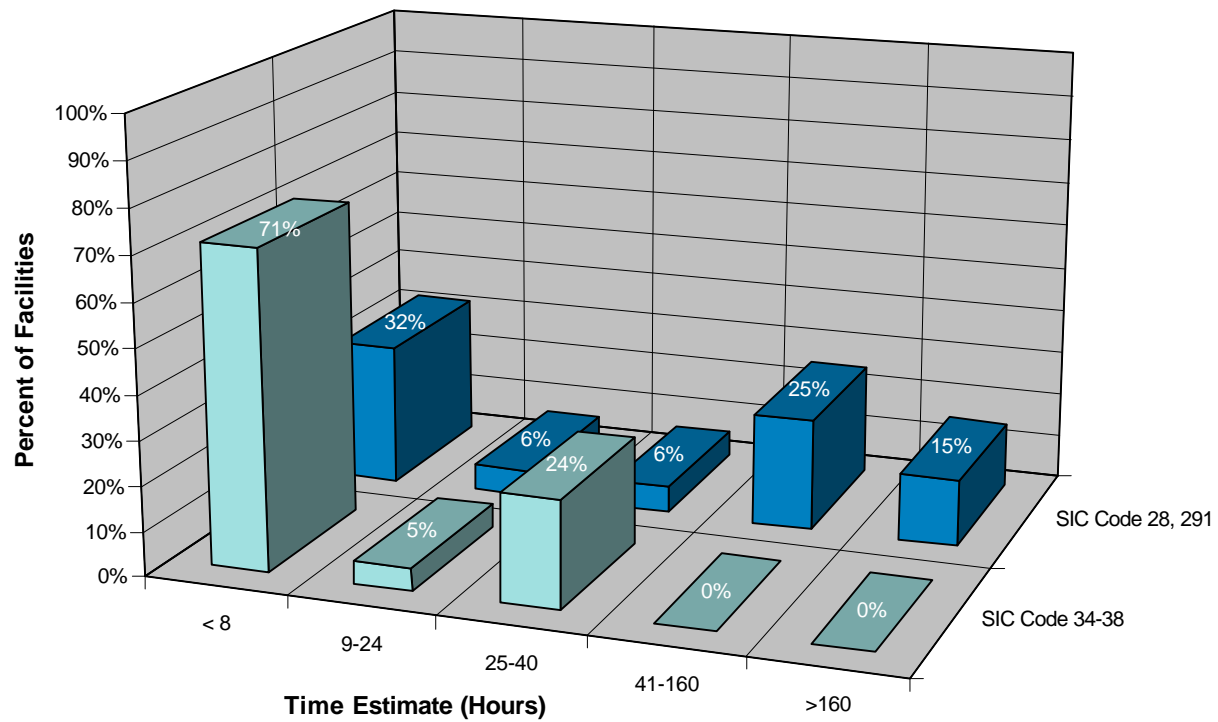
**Table 6-5****Number of Hours Required to Complete all the Form Rs for RY 1994**

Time Estimate	Percentage of Facilities			
	SIC Code 25 <sup>a</sup>	SIC Code 281	SIC Code 285	SIC Code 30
≤20 hours	42	63	61	56
21-50 hours	48	19	38	42
51-100 hours	6	12	0	2
100-200 hours	0	6	1	0
>200 hours	0	0	0	0

<sup>a</sup> Totals do not equal 100% because not all facilities reported the time estimate. These data are scaled data which are weighted to represent the entire SIC Code.



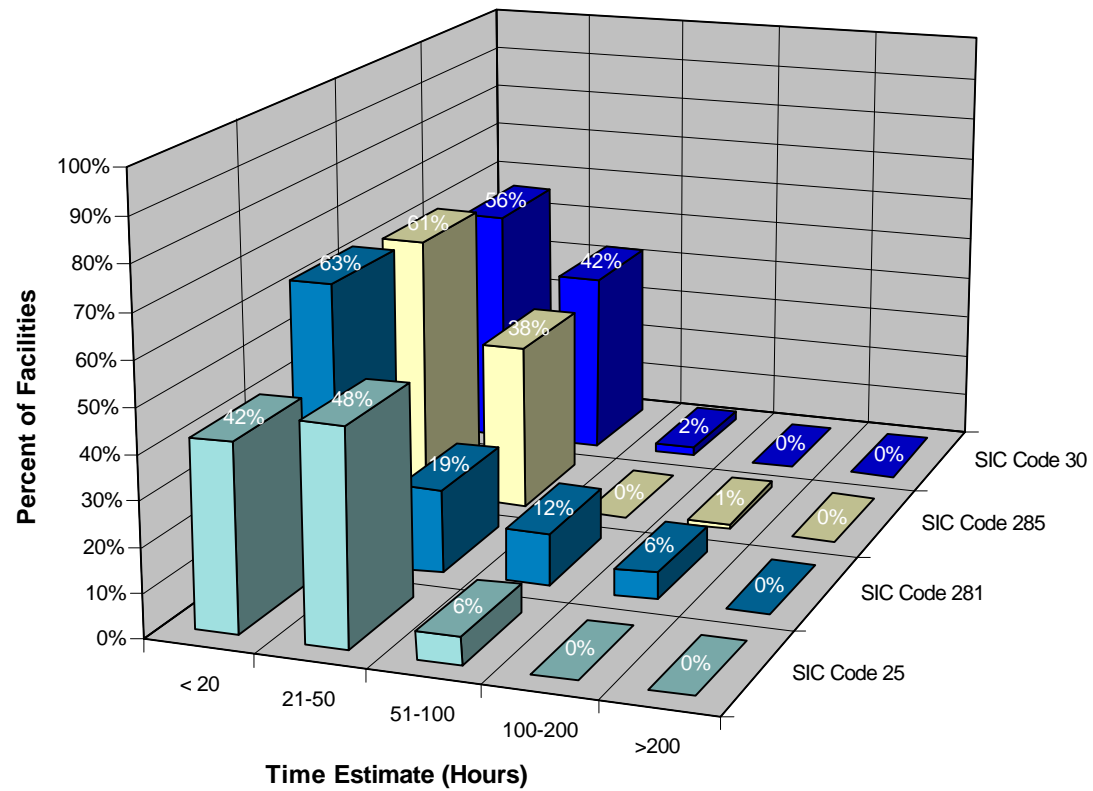
**Figure 6-3. Time Needed to Complete Form R in RY 1988 for SIC Code Groups 28 and 291, and 34 - 38**



May not add up to 100% because not all facilities reported the time estimate

Data for this figure can be found in Table 6-4.

**Figure 6-4. Time Needed to Complete Form R for RY 1994 for SIC Code Groups 28, 25, and 30**



May not add up to 100% because not all facilities reported the time estimate

Data for this figure can be found in Table 6-5.

**Table 6-6****Number of Hours Required to Complete all the Form Rs for RY 1995**

Time Estimate	Percentage of Facilities	
	SIC Code 26	SIC Code 286
≤8 hours	20	20
9-20 hours	10	0
21-40 hours	40	10
41-100 hours	20	60
>100 hours	10	10

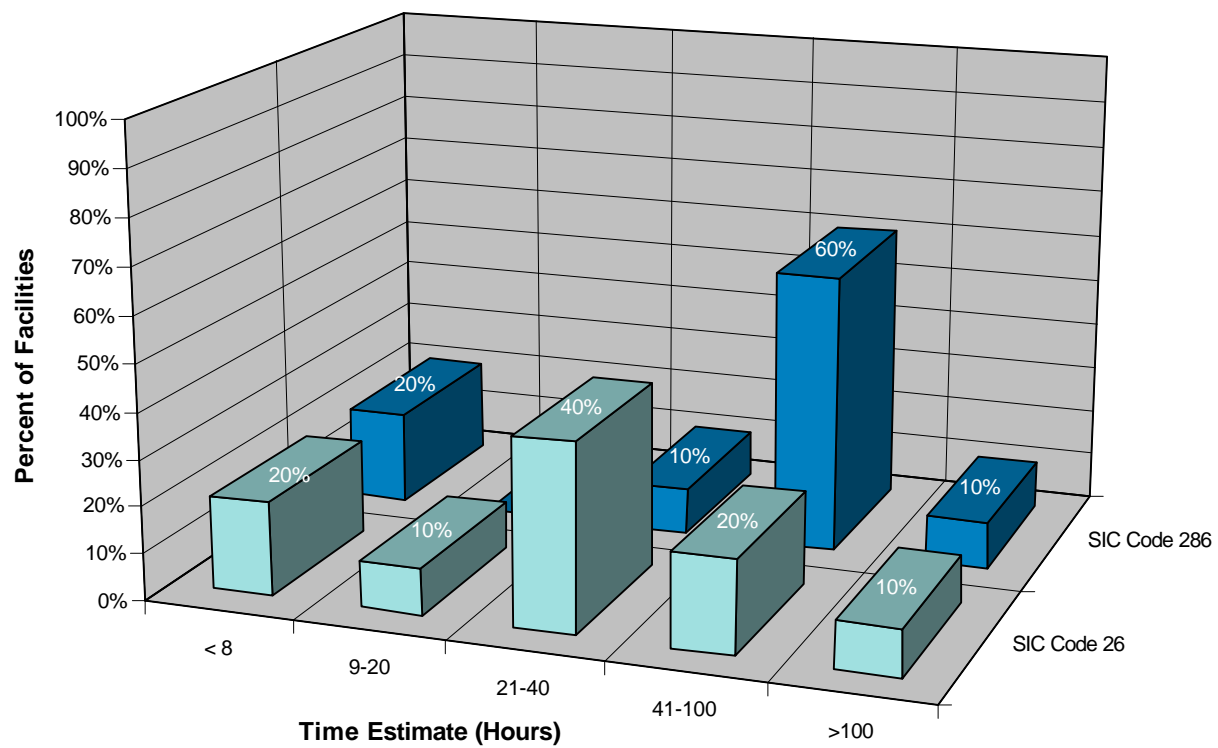
These data are scaled data which are weighted to represent the entire SIC Code.

**Table 6-7****Average Number of Hours Needed to Complete a Form R**

SIC Code	Time Estimate (Hours)
25 (RY 1994)	12.9
281 (RY 1994)	9.9
285 (RY 1994)	11.5
30 (RY 1994)	13.4
26 (RY 1995)	9.4
286 (RY 1995)	8.8
RY1994 Overall	11.7
RY 1995 Overall	9.0

These data are scaled data which are weighted to represent the entire SIC Code.

**Figure 6-5. Time Needed to Complete Form R in RY 1995 for SIC Code Groups 26 and 286**



May not add up to 100% because not all facilities reported the time estimate

Data for this figure can be found in Table 6-6.

It is recognized that the average time needed per Form R is a function of the maximum number of hours in the lowest range checked. (The lowest range is different for facilities surveyed in RY 1994 and RY 1995.) However, the time estimates listed represent an average range, and are significantly lower than the 43 hours needed per Form R listed in the 1995 EPCRA Section 313 reporting instructions.

### **6.3            Use of the Hotline**

For RY 1994 and RY 1995, 33 percent and 50 percent, respectively, of the facilities visited reported calling the hotline. Figure 6-6 shows the percentage of facilities calling the hotline for each of the SIC Codes included in this analysis.

As can be seen by Figure 6-6, personnel at approximately half of the inorganic chemical (SIC Code 281) and paint and allied products (SIC Code 285), paperboard (SIC Code 26), and organic chemical (SIC Code 286), facilities called the hotline, compared to approximately one-fourth for the furniture (SIC Code 25) and plastics manufacturing facilities (SIC Code 30).

Most of the respondents in RY 1994 and RY 1995 (86 percent) indicated that the hotline response was helpful. However, several facilities stated that they had difficulty in getting through to speak to an operator, and in some cases the answers provided were not consistent. The majority of facilities stating that the hotline was not helpful reported being unable to get through to an operator.

### **6.4            Comments on the Form R Instructions**

Surveyors also interviewed facility personnel in an effort to gain general comments on the Form R instructions. One commenter suggested that tabs or a “quick reference guide” be included in the instructions to allow for easy navigation through the separate sections of the report. Other areas of the report which were stated as being unclear included how to submit a revised form and how to distinguish or document off-site transfers for repackaged materials.

Table 6-8 shows the number of respondents who identified a particular aspect of the chemical specification information as being unclear.

**Table 6-8**

**Comments on the Form R Chemical Specific Instructions for RY 1994**

Subject Area	Number of Respondents stating a Subject Area was unclear					
	RY 1994				RY 1995	
	SIC Code 25	SIC Code 281	SIC Code 285	SIC Code 30	SIC Code 26	SIC Code 286
Toxic Chemical Identity	0	1	0	1	1	0
Mixture Component Identity	1	0	0	0	0	0
Activities and Uses of the Toxic Chemical	1	2	1	0	1	1
Releases to the Environment On-Site	1	1	0	0	0	0
Transfers in Waste to Off-Site Locations	1	1	0	0	0	0
On-Site Waste Treatment Methods and Efficiency and On-Site Energy Recovery and Recycling Methods	0	1	1	0	2	3
Source Reduction and Recycling Activities	1	1	0	1	2	2

The general comments received on the Form R instructions are summarized for each SIC Code as follows:

#### SIC Code 25 - Furniture Manufacturing (RY 1994)

- One facility needed more information on estimating pollutant releases for a material when only a range of concentration is provided on the MSDS.
- The definitions for material usage type (manufactured, processed, otherwise used) are unclear. In addition, more clarification is needed on estimating production ratio.

#### SIC Code 281 - Inorganic Chemicals Manufacturing (RY 1994)

- Several facilities requested more details on identifying and quantifying treatment, recycling, and repackaging activities. More examples would be helpful.
- More guidance is needed on estimating future releases needed for Section 8.

#### SIC Code 285 - Paint Manufacturing (RY 1994)

- Need assistance in estimating releases associated with wastewater treatment plant discharges.

#### SIC Code 30 - Rubber and Plastics Manufacturing (RY 1994)

- Several facilities had questions on how to determine production ratio/activity index.

#### SIC Code 26 - Paper and Paperboard Manufacturing (RY 1995)

- Many facilities reported that the guidance for ammonia threshold and release calculations are unclear.
- One facility would like clarification on the definitions of energy recovery, treatment and recycling.

#### SIC Code 286 - Organic Chemicals Manufacturing (RY 1995)

- The definitions for material usage type (manufactured, process, otherwise used) are unclear.

## 6.5

### **Comments on the Automated Form R (AFR)**

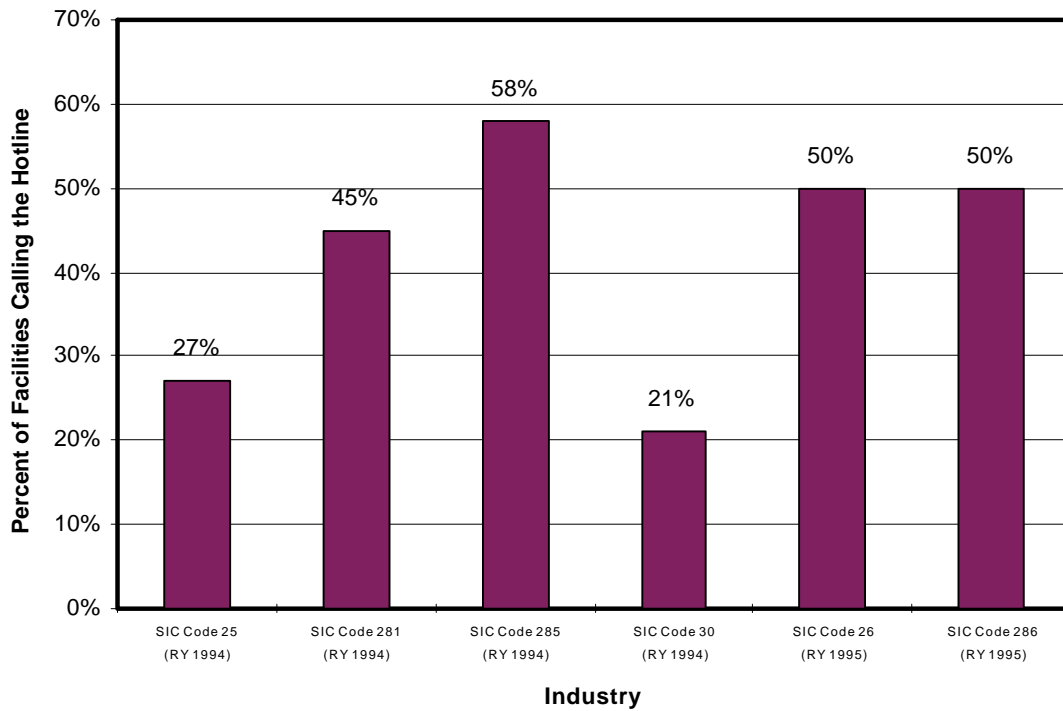
Approximately half of the facilities surveyed for RY 1994 and RY 1995 used the AFR to help them prepare their Form R's. The majority of those that used the form stated that it was helpful, with only a handful stating that it was not helpful. This information is shown graphically in Figure 6-6.

The types of feedback provided on the AFR is summarized as follows:

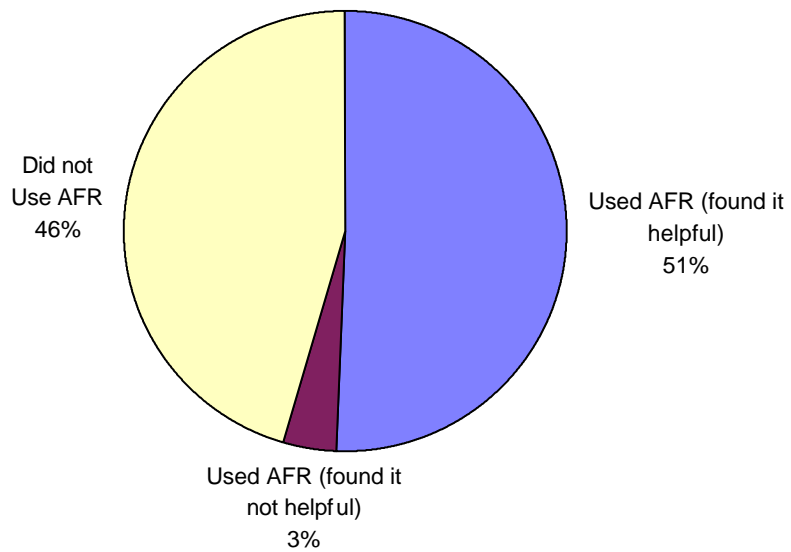
- In general, the AFR is easy to use and does help minimize errors. In particular, it's nice that the common data (such as facility name) is maintained from year to year and only the release information needs to be updated. Several commenters stated that it seems to be getting better with each release version.
- Several commenters who attempted to use the AFR could not get it running on their systems. This was more common with Windows NT users. Windows NT does not seem to properly interface with the AFR.
- There were numerous instances of individuals having difficulties in printing their reports once finished.
- One commenter stated that it took 6 weeks for a phone call requesting assistance in using the AFR to be returned.
- The AFR could use more range checks, error checks, and look up tables. In addition, transcription errors cannot be caught using the AFR.



**Figure 6-6. Percent of Facilities Calling the Hotline by Industry for RY 1994 and RY 1995**



**Figure 6-7. Percent of Facilities using the Automated Form R for RY 1994 and RY 1995**



## 6.6

### **Comments on Use of the Form A**

In general, facilities like the new Form A and found it easy to use. However, results show that some facilities incorrectly used the Form A when they should have used the Form R. Facilities must use the Form R if they manufacture, process, or otherwise use at least 1 million pounds of the toxic chemical. Some facilities did not realize this upper limit existed. Also, facilities must use the Form R if their total annual reportable amount is greater than 500 pounds. The annual reportable amount includes those quantities released, including disposed or treated, recovered at the facility from recycle operations, combusted at the facility for the purpose of energy recovery, and transferred off-site for purposes of recycle, energy recovery treatment, or disposal. Some facilities interpreted annual reportable amount to be releases only, and therefore incorrectly used the Form A even when their actual reportable amount was greater than 500 pounds. Some facilities did comment that since they have to estimate their releases and other waste management quantities regardless of which form they use, they might as well complete the full Form R.

## 7.0

## CONCLUSIONS

Overall, the agreement between facility and surveyor estimates was good. General trends noted in the RY 1994 data were that the total releases claimed by the facility for all SIC Codes surveyed were less than the total releases claimed by the site surveyors. RY 1995 data showed that the total releases and other waste management quantities claimed by the facility approximately equaled those quantities claimed by the site surveyors. The percent difference in total releases and other waste management quantities between the facility calculations and the surveyor calculations ranged from 0.8% different in SIC Code 26 (paper and paperboard manufacturing) to 31% different in SIC Code 285 (paint manufacturing). The relatively high percent difference for total releases and other waste management quantities in SIC Code 285 is due to two facilities which did not understand on-site recycling quantities, and, therefore, did not report them. If these two facilities are excluded from the analysis, the percent difference is 20%. Total aggregate releases and other waste management quantities calculated by facilities and site surveyors for all SIC Codes surveyed in RY 1994 and RY 1995 differed by 4%. Engineering calculations and mass balances were the most common methodologies used by facilities to determine releases.

Facilities in all SIC Codes tended to overestimate stack emissions and underestimate fugitive emissions. Many facilities were confused by the definitions of these emissions and misclassified fugitive emissions as stack emissions. Surveyors also identified frequent errors to the classification of transfers to off-site disposal/treatment/energy recovery/recycling.

Significant differences were observed between the quantity of chemicals reported released and otherwise managed by surveyed facilities, scaled to the entire SIC Code, and the quantity of chemicals released and otherwise managed by all facilities in that SIC Code reported in the TRIS database. While the results of the site survey program are useful to identify trends in the data, common errors, and the relative accuracy of the data, this finding suggests the absolute magnitude of releases and other quantities managed as waste or errors in these estimates at the surveyed facilities should not be used to represent the entire SIC Code.

TRI site survey results apply to aggregate data only, that is, some of the apparent data accuracy comes from the cancellation effects of under- and over-reporting of releases. The accuracy referred to here is not “true accuracy” but a measure of how well facilities used best available data and estimation techniques. The results of the site survey, therefore, should not be used to evaluate the accuracy of the data from an individual facility or a single release stream.

Evaluation of the threshold calculations performed revealed that for 90% of the chemicals across all SIC Codes surveyed threshold determinations were correctly determined. Five percent were incorrectly reported as exceeding thresholds, and five percent were incorrectly omitted from Form R reporting. Comparison of the 6 SIC Codes surveyed for RY 1994 and RY 1995 reveal that SIC Codes 25 (furniture manufacturing), 26 (paper manufacturing), and 30 (rubber and plastic manufacturing) facilities had the best accuracy for determining thresholds, as 98% of the toxic chemicals thresholds were correctly determined. SIC Code 281 (inorganic chemical manufacturing) facilities were the least accurate in correctly determining thresholds, as 84% of the toxic chemicals were correctly determined.

Evaluation of on-site activities revealed that organic chemical manufacturing facilities (SIC Code 286) do much more on-site treatment and recycling than facilities in the other SIC Codes surveyed. In general, the site surveyors agreed with the facilities releases and other waste management estimates for most on-site activities.

The increasing number of trade association conferences and amount of EPA and trade association guidance has increased the quality of TRI reporting. Some industries, like the pulp and paper industry, have developed their own guidance manuals for facilities in their association to use in filling out the TRI reports. Other industries, such as the paint manufacturing industry, seem to know less about TRI reporting, estimation techniques, and the documentation requirements. In such industries, additional guidance on the amount and types of documentation needed for accurate TRI reporting, and the methodologies used to estimate releases and other waste management activities would help reduce the number of errors in threshold determinations and release estimates.

## **8.0 RECOMMENDATIONS**

This section presents several recommendations for the EPCRA Section 313 program based on the results and conclusions of the RY 1994 and RY 1995 data quality assessment based on site surveys. Improvements in reporting guidance and in the reporting instructions, as well as facilities' experience in completing Form R reports for the previous reporting years will continue to improve the data quality in the TRI database. Recommendations for continued improvement of the TRI database are listed below.

### **8.1 Additional Guidance Concerning Form R Instruction and Documentation**

General recommendations noted by site surveyors for all SIC Codes include introducing and explaining the Question/Answer document and sixteen guidance documents currently available from EPA in the front of the TRI instructions. Many facilities and trade associations did not read the entire TRI instruction booklet and, therefore, were not aware these documents existed. Specific comments from facilities in each of the SIC Codes visited are as follows:

#### **SIC Code 25 - Furniture Manufacturing (RY 1994)**

- Better definitions are needed in order to distinguish between manufacture, process, and otherwise use activities.
- There were several comments with the general sentiment that the EPA and State and Local agencies should attempt to consolidate environmental reporting and standardize acronyms and definitions for terms such as "fugitive" emission sources. One specific suggestion was for a "Dummies guide to environmental reporting."

#### SIC Code 30 - Rubber and Plastics Manufacturing (RY 1994)

- EPA should develop “a good, clean web-site” for TRI data. The commenter stated that the TRI CD-ROM was helpful and possibly could serve as the structure for a web site.
- More information was requested on determining production ratio. This was specifically requested for those EPCRA Section 313 Chemicals produced as by-products or where the production ratio is determined by something other than the annual production ratio of the final product.

#### SIC Code 281 - Inorganic Chemicals Manufacturing (RY 1994)

- One commenter stated that much of the information reported as part of the Form R could be obtained by EPA from other sources such as Title V Air Pollution permits.
- One general comment from several commenters was that more information is needed on estimating fugitive emissions from sources such as wastewater treatment and mixing tanks.
- Facility Personnel also requested more guidance on classifying and quantifying recycling and source reduction activities.

#### SIC Code 285 - Paint Manufacturing (RY 1994)

- An industry-specific guidance manual was requested, including examples specific to chemicals and release types associated with paint manufacturing.
- One consultant who worked on the Form R preparation felt that the estimation release guidance could be geared to a more technical audience.
- The guidance is not clear on what “working losses” are for storage tanks. Another commenter felt that the range of loss factors for paint mixing was too wide.

#### SIC Code 26 - Paper and Paperboard Manufacturing (RY 1995)

- Some facility contacts said they would have benefited from published treatment or removal efficiencies as well as published partition coefficients.
- Many facilities requested more definitive ammonia reporting guidance.

#### SIC Code 286 - Organic Chemicals Manufacturing (RY 1995)

- One general comment from some facilities was that greater availability of the guidance manuals was needed. Facility contacts suggested industry specific guidance, targeting (and listing) specific SIC Codes be posted on the Internet.

### **8.2      Additional Guidance Concerning Threshold Determinations**

Although the nature and extent of threshold determinations varies from one industry to the next, some general lessons can be learned from the mistakes identified by the site surveyors. Table 8-1 lists common errors made by facilities when determining thresholds and offers several recommendations to avoid making such errors in the future. These recommendations may also be useful to EPA when developing future releases of TRI reporting instructions.

### **8.3      Additional Guidance Concerning Release and Other Waste Management Quantity Estimates**

Table 8-2 lists common errors made by facilities in all SIC Codes surveyed when estimating releases and other quantities managed as waste, and offers several recommendations to avoid making such errors in the future.

**Table 8-1**

**Recommendations for Avoiding Errors in Threshold Determinations**

<b>Error Observed in Determining Thresholds</b>	<b>Recommendation for Avoiding Error in Future TRI Reporting Years</b>
Facility did not document results of threshold determinations.	Reporting instructions should emphasize that documentation requirements apply to both threshold determinations and release estimates.
Facility assumed Section 313 chemicals exceeded thresholds, rather than calculating annual usages and comparing these to reporting thresholds.	Facilities should be informed that assuming thresholds are exceeded, rather than calculating annual usages for Section 313 chemicals, is a common source of errors in TRI reporting. Reporting instructions should encourage facilities not to assume thresholds are exceeded, even for chemicals used in very large or very small quantities.
Facility overlooked Section 313 chemicals that were purchased in mixtures.	Facilities should carefully review the most recent MSDS for every mixture brought on site to identify all Section 313 chemicals used during a reporting year.
Facility considered only raw materials used for production and overlooked chemicals used for other purposes.	Facilities should take a systematic approach to identify all chemicals and mixtures used in production and non-production capacities, including catalysts, underground injection well treatment chemicals, wastewater treatment chemicals, and the like.
Facility environmental staff was unaware that certain Section 313 chemicals were used at the plant.	Facilities should implement measures, such as chemical usage logs or hazardous chemical inventories, to ensure that environmental staff are aware of all Section 313 chemicals used in industrial applications.
Facility did not account for EPA's most recent releases of threshold determination guidance.	EPA should enhance outreach efforts to ensure that all facilities are aware of revised reporting guidelines well in advance of submission deadlines.



**Table 8-2**

**Recommendations for Avoiding Errors in  
Identifying Release Types and Sources**

<b>Observed Error</b>	<b>Recommendation for Avoiding Error in Future TRI Reporting Years</b>
Fugitive emissions from general indoor air reported as stack emissions when released from a single building vent	Stack and fugitive releases need to be better defined, especially regarding general room air that is simply moved to one release point on top of the building (without air pollution control devices). Note: Many state definitions are exactly opposite the TRI definition in this instance.
Use of outdated SOCFI emission factors	Instructions should note that SOCFI factors have been updated.
Overlooked stack emissions from storage tanks, or reporting these emissions as fugitives.	Instructions should emphasize this potential release source and briefly discuss the definition of loading, working, and breathing losses from tanks (and the methodology to calculate them).
Overlooked container residue	Instructions should emphasize that even a “RCRA empty” drum is expected to contain a residual (possibly up to two inches) and that it must be considered for TRI reporting. Also, note that on-site drum rinsing and disposal of the rinsate will result in a release.
Overlooked coincidental manufacturing	Instructions should indicate that if coal and/or fuel oil are used in boilers/burners there is a potential for coincidental manufacture (and release) of various EPCRA Section 313 Chemicals (such as H <sub>2</sub> SO <sub>4</sub> , HCl, and HF).
Incorrectly reporting release disposition for off-site transfers	Instructions should emphasize that facilities should attempt to determine the type of receiving facility that is accepting the transfers.

**Table 8-2 (Continued)**

**Recommendations for Avoiding Errors in  
Identifying Release Types and Sources**

<b>Observed Error</b>	<b>Recommendation for Avoiding Error in Future TRI Reporting Years</b>
Questions over catastrophic releases	EPA should provide guidance as to what quantity and frequency designate a release for Section 8.8.
Questions over on-site recycling	EPA should provide a definition of recycling and include examples of streams that can be considered as being recycled in Sections 7 and 8. An example would be used solvents. Specifically, is a “used” solvent that is collected and processed in the next batch considered recycled/reused, or does it have to be separated first (e.g., distilled or filtered). This is not clear in the current guidance.
Questions over source reduction	EPA should consider shortening the list of codes for source reduction and should provide definitions for each code.
Questions over on-site treatment	EPA should provide definitions for each code and clarify whether separation technologies should be considered (for example, many facilities were unsure if a water scrubber that simply moved a EPCRA Section 313 Chemical from the air to a water stream should be considered as treatment).
Questions over energy recovery	EPA needs to define situations for energy recovery. Examples that came up included pulp mills which use Kraft recovery boilers. The main purpose is to generate steam, but at the same time waste material that contains EPCRA Section 313 Chemicals is being burned and destroyed. Some people argued that the BTU value was high enough to claim energy recovery. Other people argued that the intent for throwing certain wastes into the boiler was to destroy (and treat) the EPCRA Section 313 Chemicals.

**Table 8-2 (Continued)**

**Recommendations for Avoiding Errors in  
Identifying Release Types and Sources**

<b>Observed Error</b>	<b>Recommendation for Avoiding Error in Future TRI Reporting Years</b>
Overlooking On-Site Recycling: One facility noted that although they employ considerable on-site recycling activities (to recover/reuse expensive raw materials that contain EPCRA Section 313 Chemicals); they do not report them for TRI because claiming recycling would require them to register as a hazardous waste treatment facility for their state.	There needs to be a consistent definition between states and TRI for recycling. EPA and state agencies should discuss this situation and provide appropriate guidance.
Questions over Section 8 amounts.	Facilities would like a simple formula for releases in each block of Section 8. (e.g., Section 8.1 = 5.1 + 5.2 + 5.3 + 6.2 (disposal only)). This will cut down on errors and double counting.
There needs to be clarification of the treatment definitions in Sections 7 and 8 of the Form R.	The definitions in the two sections are currently different, and this can cause problems when reporting. Confusion occurs when: 1) chemicals go through a treatment system but are not destroyed - facilities need direct guidance to claim "0" efficiency, and then what to put in Section 8 (0 or NA); 2) facilities may report the amount sent to treatment vs the amount treated. This is confusing because facilities are supposed to report the amount sent to energy recovery and the amount sent to recycling, but not the amount sent to treatment (they should correctly report the amount treated instead).
There needs to be clarification on how to calculate production ratio for "otherwise used" chemicals.	Facilities often used quantities purchased or released from year to year rather than an activity index, even though the guidance specifically states not to do this.